CALFED Bay-Delta Program
Veale Tract & Byron Tract Work Group

November 1, 1999 Meeting Notes

Meeting Agenda

1. Summary of September 8th meeting
2. Developments since the September 8th meeting
3. RD 800 Outfall modification – Issues and Concerns
4. Veale Tract relocation options
5. Components of a long-term regional solution for source reduction
6. Other issues
7. Summary and focus of next meeting

The next meeting is scheduled for Monday, December 6th, from 10:00 a.m. to 3:00 p.m. at the Randall Bold Water Treatment Plant conference room, 3760 Neroly Road, Antioch, California 94561.

Overview of the Meeting (sign-in sheets are attached)

Judy Heath (CALFED) gave a brief review of the agenda and summarized the September 8 meeting notes. Short term and long term approaches to improve water quality at the intakes were proposed. Short-term solutions could be modifications of the existing Byron Tract outfall and relocation of the Veale Tract discharge. Long-term solution could be a regional solution to achieve reductions in salt and other contaminant loads discharged into the Delta.

Heath explained that the role of the Veale/Byron Tract Work Group is to advise CALFED on solution options to reduce discharges and to improve water quality at Rock Slough and other intakes. Heath mentioned the formation of the Delta Drinking Water Council, which makes recommendations to the Policy Group through the Bay-Delta Advisory Council (BDAC). The recommendations from this Work Group will be reviewed by the Delta Drinking Water Council. Two other groups also provide technical support to the Delta Drinking Water Council on drinking water concerns. The Drinking Water Constituents Work Group addresses the sources and loads of salt and other contaminants at urban intakes in the Delta, and the Drinking Water Operations Work Group evaluates the relationship between various types and locations of storage as part of the CALFED Drinking Water Quality Improvement Strategy.

Blank forms for the technical screening of alternatives were prepared (attached to the end of this meeting summary). Richard Denton (Contra Costa Water District, CCWD) added that the screening exercise is not a formal decision process but a tool that would help to focus efforts on the more promising approaches.

The importance of completing specific assignments in between meetings was stressed. Monthly meetings for the entire group were proposed. Smaller subgroups may meet more frequently to address specific issues. Bonnie Nixon (Public Affairs Management) reviewed the meeting logistics, guidelines and served as facilitator throughout the meeting.

Funding

Stein Buer (CALFED) discussed funding for Fiscal Year 2000. Funding discretion lies with the CALFED policy group, which will be responsible for making all final decisions. Details of the administration process for the funding will be discussed at the next meeting. At this point $10 million of the $60 million federal funding is committed to the South Delta Program, of which $6 million has been committed to the fish screen facility at the Tracy Pumping Plant. The Policy Group will base its funding decisions largely on the progress on clearly identifiable agreed upon actions. Consensus among stakeholders is critical.

Other Developments since September 8 Meeting

Judy Heath has conducted additional stakeholder outreach to ensure adequate representation in this group. KT Shum (CCWD) discussed Senate Bill 1006, which was recently passed into law. The bill allows wastewater districts to exercise more control over the salt load originating from water softeners. Contra Costa Water District is also working with a consultant to quantify the water quality benefits of mitigation actions modifying the existing Byron Tract drainage discharge facility such as extending the outfall or adding a diffuser. Preliminary analysis indicates that there would be substantial improvements also if the drainage is discharged only when the flow in Old River is to the south. A report is being prepared and could be made available after it is finalized.

Virgil Koehne (Discovery Bay Community Services District) expressed concerns that the Work Group is not focusing on actions that would minimize salt and other contaminant loads into the Delta. The Regional Water Quality Control Board is in the process of reviewing the Basin Plan. This Work Group should closely track the developments and respond accordingly. Bruce Macler (U.S. EPA, Region IX) agreed that the most important issue is contaminant loads and that obtaining reliable and adequate source load information is critical.

Veale Tract Actions

Not all of the drainage pumps in Veale Tract have been functioning continuously in the past. In some places there are no permanent pumping facilities and portable pumps were used at times of need, at local landowners' expense. The existing 350 horsepower pumps are already operating at capacity. There are significant operations and water quality concerns.

Marc Frelier (Veale Tract) questioned the magnitude of impact of Veale Tract drainage on the water quality in the Contra Costa Canal. He maintained that the Rock Slough discharge facility might not have been operating in 1995 and 1996, the period shown as example of water quality degradation along Rock Slough and the Contra Costa Canal (see Attachment A to the September 8th Work Group Meeting Summary). A consultant to CCWD is currently analyzing the historical water quality data at a number of stations in the area. Frelier, Gilbert Cosio (MBK Engineers, Engineering consultant to Reclamation District 2065), and Shum would meet to review the results before the next meeting.

Owing to the first time attendance of a number of interested parties from Knightsen, Hotchkiss, and Veale Tract, most of the discussion focused on the importance of including the Knightsen area in designing a solution.

Knightsen Drainage

The Knightsen area is to the west of Veale Tract and has a higher elevation. Surface and groundwater flow from the Knightsen area drains into Veale Tract and impact both the quantity and quality of the drainage. However, there is an existing barrier such that the Knightsen area drainage does not drain directly into Veale Tract as surface water flow. The existing arrangement is insufficient to manage wet weather runoffs.

The Contra Costa County (Mitch Avalon, Program Manager) has pursued a drainage management project over a number of years, but was stalled because the implementation cost was beyond the budget of the County and the landowners. At this time there is no drainage plan or Irrigation District in the area. The Knightsen drainage could be discharged into the No Name Cut if a pipeline is constructed to extend an existing Richardson Drain under a sand hill to the Slough. The sand hill is too high to be traversed with a canal. The integrity of levees around No Name Cut is a concern. A solution may be to construct rip-raps, which could be expensive. The CALFED Levees Program should be consulted.

The soil in the Knightsen area is high in salt. In the 1970's, a lot of trees died because of high alkalinity in the soil. Drainage and groundwater flow originating from Knightsen and from Veale Tract could have different quality that needs to be quantified.

Another potential solution is to divert the drainage into created wetlands, which would act as a purification system. Marc Frelier and Ivan Cerris (both of Veale Tract) have land for sale that could be converted to wetlands. Marc Frelier recently put 500 acres into a wetlands program as a permanent easement with the U.S. Department of Agriculture / Natural Resources Conservation Service (NRCS) – Wetlands Restoration Program (WRP). However, the effects of high salinity drainage on vegetation and any long-term impacts would need to be better identified.

A number of landowners would be affected by changes in drainage conveyance in the area. They include Ivan Cerris (who owns 650 acres of Veale Tract), Coleman Foley (who owns 850

acres), Delta Wetlands (who owns ¾ of Holland Tract), and Marc R. Frelier (who owns ¼ of Veale Tract). In addition, the railroad and East Contra Costa Irrigation District (ECCID) right of ways might also be encroached upon. Stakeholders are meeting with Assemblywoman Lynn Leach to discuss the Knightsen drainage problem in detail on November 9, 1999. A report of the meeting will be made in the next Work Group meeting. The Contra Costa County (Mitch Avalon) will also provide a detailed description at the next meeting on the surface hydrology and landowners.

Regarding meeting the environmental impact documentation requirements of any future projects, the County and ECCID has jurisdiction over most of the impacted area.

Relocation

Two of the relocation alternatives discussed in the previous meeting (see meeting notes of September 8th) were reviewed and recommended for elimination from further considerations. The reasons are as follows:

Relocation to Sand Mound Slough

Bob Grumm (landowner on Hotchkiss Tract) stated that landowners around Sand Mound Slough (SMS) would be opposed to degrading the water quality in SMS caused by redirected Veale Tract drainage. Any action in SMS would be potentially controversial. A number of urban developments are being planned in the area and the water quality in SMS has been poor. Grumm attributed the problem to a flow control structure in SMS at Rock Slough, and maintained that this leads to an insufficient flow of better quality water into SMS and that sediments accumulate in the SMS side of the flow structure.

The existing structure was constructed by the U.S. Bureau of Reclamation in the 1940's to limit flow to only one direction, from Rock Slough to SMS. Two circular submerged culverts with one-way flap gates allow water into SMS when the water level in Rock Slough is higher, typically during ebb tide. One numerical simulation estimates that the flow averages 30 cubic-feet-per-second (cfs) over a day.

Relocation to Marsh Creek

There was general consensus that the Marsh Creek alternative should be eliminated from further analysis. Marsh Creek has reached capacity during winter storms and has very limited flexibility to accommodate additional discharges. The alternative is also much more costly than the other relocation options.

Drainage Treatment

A number of stakeholders in the Work Group are not familiar to the specific constituents of concern to drinking water agencies, in particular those CCWD is working to reduce in this CALFED action. CCWD and CALFED will give a review in the next meeting.

Treating all Veale Tract drainage by reverse osmosis (RO) eliminates this source load of salt and other contaminants into the Delta and produces water for reuse. Waste stream disposal is a yet unresolved issue. One approach is to concentrate the salt in the reject water in evaporation ponds and then dispose of. However, the current cost estimate for this approach is between $750,000 and $2 million per year. This is not considered feasible and the approach would be eliminated from further analysis.

Other Comments

- For the long-term regional solution, drainage from Bacon Island and Palm Island should also be quantified for source loading of salt and other contaminants.
- Relocation of the discharge point to Werner Cut might be a simpler solution because a fewer number of landowners would need to be involved.

Byron Tract

The relative contributions from agricultural drainage and the Discovery Bay discharge to the salinity increase at the Los Vaqueros intake was discussed. The Discovery Bay discharge varies both seasonally and during the week, and averages 1.1 MGD on weekdays and 1.4 to 1.5 MGD over the weekends. On the average it contributes to less than ten percent of the total Reclamation District 800 discharge into the Old River. More details on the volumes and water quality of the discharge will be presented in the next meeting.

Potential of the Victoria Island discharge to cause water quality degradation at the Los Vaqueros intake

The potential impacts at CCWD's Los Vaqueros (LV) intake due to two agricultural drainage discharges from Victoria Island were discussed. The two discharges, one to the north and one to the south, are within a mile from the LV intake across the Old River.

Short duration (a few hours) salinity increases measured at the intake were discussed in the previous meeting (see Attachment C in the September 8th Work Group Meeting Summary). These sporadic salinity increases occurred only when flow in Old River is to the north. For the Victoria Island discharge to the north of the LV intake to cause such salinity increases, the

drainage would have to be carried south first. The drainage would then become fairly well mixed across the channel cross-section by the time the flow reverses. The salinity increases observed at the LV intake are such that this drainage would have to be of a magnitude significantly beyond any reasonable estimates for the island. Similarly, the Victoria Island discharge to the south is likely to be reasonably well mixed by the time it reaches the LV intake because of the bend in the river.

In an ongoing study, field visualization and measurements were performed to track the dispersion of the discharge from Byron Tract. The results showed that, when the Old River flow is to the north under certain hydrological conditions, the discharge could remain close to the west shore and receives limited ambient dilution when it passes by the LV intake. This could lead to a significant salinity increase comparable to that observed. The near-shore dispersion characteristic persists until the plume reaches the next bend in the river.

Modification of existing outfall facilities

Preliminary results from an ongoing consultant study suggest that substantial less drainage from RD 800 would be diverted at the Los Vaqueros intake in this alternative. The study simulates the water quality changes using historical tide and hydrology of 1994 and 1997 (a critically dry year and a wet year). A report is being prepared and more details of the results will be presented in the next meeting.

Any impacts on recreation due to the new dispersion pattern caused by the outfall modifications would be minimal. The drainage will be better mixed, in the case of a diffuser, or will stay closer to the east shore of the channel. In both cases the drainage would be considerably more diluted than under existing conditions.

The group generally agreed that a diffuser or an extension of the outfall could be the most promising solution to address the water quality problem for CCWD. A more comprehensive solution to reduce the loading of drinking water contaminants in the Delta would be difficult in the short term because of the many discharges in the Delta.

Drainage Treatment

Wetlands

The possibility of passing the entire Reclamation District 800 drainage through wetlands before discharge to the Delta was discussed. A rough estimate suggests that over 600 acres of wetlands would be required. This is based on a pilot study by the Sacramento Regional County Sanitation District, which uses a 22 acres plot of wetland for 1 MGD discharge. Wetlands were found to be able to remove a significant percentage of heavy metals in the influent, but it would not reduce the salt load. There is not enough information on the effects of wetlands on organic carbon production. (Organic carbon is a precursor to trihalomethane formation). Wetland generation of

organic carbon most likely depends on a variety of factors, including soil type, seasonality and other ecological factors. The eventual discharge location of the water would depend on the availability of land area for conversion to wetlands.

Reverse Osmosis

Similar to the discussion on using reverse osmosis to treat Veale Tract drainage, reverse osmosis is not a promising solution because of cost and will be eliminated from further considerations.

Land Application

Drying beds for the Discovery Bay effluent was estimated to cost upwards of $10 million in an earlier consultant study. There are also serious concerns about land application of the residuals, particularly within the Delta Protection Zone. This alternative would not be considered further.

Relocation of discharge location

Indian Slough

There is serious concern about any treated wastewater entering the waterways in the Discovery Bay community. Relocation to Indian Slough is removed from further discussion and analysis.

Modified Operations

An ongoing consultant study shows that the amount of Byron Tract drainage reaching the LV intake could be reduced by 80% or more if the Los Vaqueros diversion is made only when the Old River is flowing south. Similar reductions could be achieved if the Reclamation District discharges only when the Old River flow is to the south. Existing drainage ditches on Byron Tract might have enough capacity to withhold discharge for 12 or more hours. Assuming an average discharge of 20 cubic-foot-per-second (cfs) and four miles of drainage ditch 20 feet wide on the island, the water level in the drainage ditch would rise only 2 feet over 12 hours.

Created wetlands could provide additional storage capacity and benefit the ecosystem, if the high salinity of the water could be used. This approach should be considered in the long-term solution. The use of wetlands to store and improve water quality in storm water should be included in the study.

Action Items

Progress on the following action items will be reported in the next Work Group meeting on December 6.

- The Alternatives Assessment form prepared for the meeting should be completed by all and returned to Heath by facsimile, at (916) 653-5699. The results will be discussed.
- An overview of the constituents of concern to drinking water utilities will be presented.
- Coordinate with the Drinking Water Constituents Workgroup and the Drinking Water Quality Operations to plan an approach to quantify salt and other contaminant loads from Delta islands

Veale Tract

- Mitch Avalon (Contra Costa County), Seth Cockrell and Larry Preston (both from ECCID) would summarize previous studies on surface and subsurface hydrology in Knightsen.
- Drainage facilities and historical operations of Reclamation District 2065 will be reviewed.
- CCWD and Veale Tract landowners would review historical water quality data and operations of the drainage facilities.
- The November 9th meeting of the Knightsen Project, and in particular the possibility of installing facilities to discharge into No Name Cut, would be reported.

Byron Tract

- CCWD will present more details on the results so far from the consultant study on the impacts of the discharge at the Los Vaqueros intake and alternatives for reduction.
- Virgil Koehne (Discovery Bay CSD) will provide more details to
  - ❖ quantify the volume and quality of the treated wastewater discharge into RD 800
  - ❖ the potential use of wetlands, including other pilot studies and land requirements (a Fish and Game representative will be invited to address treatment wetlands for the December 6 meeting)
- Chris Neudeck, Jeff Conway, and KT Shum will coordinate efforts to confirm RD-800 discharge pump operations for comparison with flow and salinity measurements at the Los Vaqueros intake.